

## **REMARKS**

The Office Action dated August 11, 2003, has been received and carefully noted. The amendments made herein and the following remarks are submitted as a full and complete response thereto.

By this amendment claim 2 has been withdrawn and claims 3, 4, 11 and 12 have been cancelled. Claims 5 and 9 have been amended to more clearly particularly point out and distinctly claim the invention. Figures 17-20 have also been amended. Applicant submits that the amendments made herein are fully supported in the specification and the drawings as originally filed, and therefore no new matter has been added.

Applicant notes that the Office Action has taken the position that claim 2 should be withdrawn because it recites subject matter related to a non-elected species. However, it is respectfully submitted that as claim 9 is generic, upon allowance of the generic claim, the Applicant respectfully requests a rejoinder of the withdrawn claims. Accordingly, claims 1, 5 and 9 are pending in the present application and are respectfully submitted for consideration.

Figures 17-20 were objected to because they were not designated by a legend such as -- Prior Art --. Figures 17-20 have been amended to include the legend of --Prior Art--. Applicant respectfully requests consideration of amended Figures 17-20.

Claims 1, 3, 5, 9, 11 and 12 were objected to because of numerous informalities. By this Amendment, claims 3, 11 and 12 have been cancelled, rendering them moot with regard to this objection. Claims 1, 5 and 9 have been amended to correct the informalities and to more clearly recite the subject matter of the present invention. Accordingly,

Applicant submits that the amendments made herein place the application in compliance with U.S. patent practice and request that the objection be withdrawn.

Claims 1, 3, 5, 9, 11 and 12 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. By this Amendment, claims 3, 11 and 12 have been cancelled, rendering them moot with regard to this rejection. Claims 5 and 9 have been further amended. Therefore, it is respectfully requested that the rejection be withdrawn.

Claims 5, 9, 11 and 12 were rejected under 35 U.S.C. § 102(b) as being anticipated by Palara (U.S. Patent No. 5,408,124). In making this rejection, the Office Action took the position that Palara discloses all the elements of the claimed invention. By this amendment, claims 11 and 12 have been cancelled, rendering them moot with regard to this rejection. However, the Applicant respectfully submits that claims 5 and 9 recite subject matter neither disclosed nor suggested in the prior art.

Applicant's amended claim 9 recites a semiconductor device with a bipolar transistor including a first conductivity type semiconductor layer serving as a collector region. A base region is constituted of a second conductivity type region provided in the first conductivity type semiconductor layer. An emitter region is constituted of a first conductivity type region provided in the base region. A base contact section is spaced apart from the emitter region in the base region, electrically connected to a base electrode. The emitter region includes a plurality of stripe regions and each of the stripe regions is formed so that a plurality of portions of the base region are exposed at the central portion of each of the stripe regions. The portions are arranged along a direction of the stripe. An emitter electrode is formed so as to be connected to the stripe regions and to cover the exposed portions of the base region via an insulating film.

In making this rejection, the Office Action took the position that Palara discloses all of the elements of the claimed invention. However, it is respectfully submitted that the prior art fails to disclose or suggest the structure of the claimed invention, and therefore, fails to provide the advantages of the present invention. For example, the semiconductor with a bipolar transistor device of the present invention is configured such that the emitter region includes a plurality of stripe regions and each of the stripe regions is formed so that a plurality of portions of the base region are exposed at the central portion of each of the stripe regions. The portions are arranged along a direction of the stripe. An emitter electrode is formed so as to be connected to the stripe regions and to cover the exposed portions of the base region via an insulating film.

As a result of the claimed configuration, high-speed switching operations are enabled as well as a reduction in power consumption. Additionally, this claimed configuration has a wider safe operation area.

In the present invention, a plurality of portions of the base region are exposed at the central portion of each of the stripe regions. The portions are arranged along a direction of the stripe, as illustrated for example, in Fig. 16. By this arrangement, it is possible to exhibit particular effects such that the contact area between the emitter regions and the base region can be further increased. Furthermore, as discussed above, it is also possible to increase the switching speed and to broaden a safe operating region.

However, upon review of Fig. 4 and Fig. 7, Palara fails to disclose or suggest that the emitter region includes a plurality of stripe regions and each of the stripe regions is formed so that a plurality of portions of the base region are exposed at the central

portion of each of the stripe regions. The portions are arranged along a direction of the stripe, as recited in claim 9.

Palara also fails to disclose or suggest the limitations of claim 5 wherein the emitter electrode connected to the emitter region and the base electrode connected to the base contact section are formed in respective comb structures in which teeth of the emitter electrode and the base electrode are engaged with each other in an alternate manner.

Therefore, it is respectfully submitted that the Applicant's invention, as set forth in claim 9, is not anticipated within the meaning of 35 U.S.C. § 102.

As claim 5 depends from claim 9, Applicant respectfully submits that claim 5 incorporates the patentable aspects thereof, and is therefore allowable for at least the same reasons as discussed above.

Claims 1 and 3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Palara in view of Kim et al. (U.S. Patent No. 5,432,360, hereinafter "Kim"). In making this rejection, the Office Action cited Palara for disclosing substantially all of the claimed elements of the present invention with the exception of showing that the base contact region can be constructed of a repeating structure of alternatively arranged P+ and N+ regions. Kim was cited for teaching this limitation.

By this Amendment, claim 3 has been cancelled, rendering this claim moot with regard to this rejection. However, as will be discussed below, Applicant submits that claim 1 recites subject matter neither disclosed nor suggested in any combination of the prior art.

The Office Action took the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the repeating structure of Kim into the base contact section of Palara so a semiconductor device with

reduced recovery time would be obtained. However, as discussed above, Palara fails to disclose or suggest the claimed invention. Kim fails to cure the deficiencies of Palara.

Therefore, it is respectfully submitted that neither Palara nor Kim, alone or in combination, discloses or suggests the claimed invention and Applicants request that the rejection be withdrawn.

Still further, because claim 1 is dependent on claim 9, Applicant submits that this claim recites subject matter that is neither disclosed nor suggested by the cited prior art for at least the reasons set forth above with respect to claim 9.

In view of the above, Applicant respectfully submits that each of claims 1, 5 and 9 recites subject matter that is neither disclosed nor suggested in the cited prior art. Applicant also submits that this subject matter is more than sufficient to render the claims non-obvious to a person of ordinary skill in the art, and therefore, respectfully requests that claims 1, 5 and 9 be found allowable and that this application be passed to issue.

If for any reason, the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact the Applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper has not been timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 107400-00043**.

Respectfully submitted,

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Enclosures: Amended Figures 17-20  
Petition for Extension of Time

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